National Institute of Environmental Health Sciences

# The "new deadly quartet" for cardiovascular disease in the 21st century: Obesity, metabolic syndrome, inflammation and climate change: How does statin therapy fit into this equation?

**Author(s):** Clearfield M, Pearce M, Nibbe Y, Crotty D, Wagner A
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**Abstract:**

Despite population-based improvements in cardiovascular risk factors, such as blood pressure, cholesterol and smoking, cardiovascular disease still remains the number-one cause of mortality in the United States. In 1989, Kaplan coined the term "Deadly Quartet" to represent a combination of risk factors that included upper body obesity, glucose intolerance, hypertriglyceridemia and hypertension [Kaplan in Arch Int Med 7:1514-1520, 1989]. In 2002, the third report of the National Cholesterol Education Program Adult Treatment Panel (NCEP-ATP III) essentially added low HDL-C criteria and renamed this the "metabolic syndrome." [The National Cholesterol Education Program (NCEP) in JAMA 285:2486-2497, 2001] However, often forgotten was that a pro-inflammatory state and pro-thrombotic state were also considered components of the syndrome, albeit the panel did not find enough evidence at the time to recommend routine screening for these risk factors [The National Cholesterol Education Program (NCEP) in JAMA 285:2486-2497, 2001]. Now over a decade later, it may be time to reconsider this deadly quartet by reevaluating the roles of obesity and subclinical inflammation as they relate to the metabolic syndrome. To complete this new quartet, the addition of increased exposure to elevated levels of particulate matter in the atmosphere may help elucidate why this cardiovascular pandemic continues, despite our concerted efforts. In this article, we will summarize the evidence, focusing on how statin therapy may further impact this new version of the "deadly quartet".

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## Resource Description

**Exposure :** ☑

weather or climate related pathway by which climate change affects health

Air Pollution

**Air Pollution:** Particulate Matter

**Geographic Feature:** ☑

resource focuses on specific type of geography

None or Unspecified

**Geographic Location:** ☑

resource focuses on specific location

Global or Unspecified

**Health Impact:**

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Diabetes/Obesity, Other Health Impact

**Other Health Impact:** metabolic syndrome;

**Resource Type:**

format or standard characteristic of resource

Review

**Timescale:**

time period studied

Time Scale Unspecified